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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/714,410	11/14/2003	Stephan Oberle	Westphal.7377	2025
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O'Shea Getz P.C. 1500 MAIN ST. SUITE 912 SPRINGFIELD, MA 01115				
EXAMINER				
KRAUSE, JUSTIN MITCHELL				
ART UNIT		PAPER NUMBER		
3656				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/714,410

Applicant(s)

OBERLE ET AL.

Examiner

JUSTIN KRAUSE

Art Unit

3656

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4, 8, 9 and 12-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 8-9 and 12-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: There is no antecedent basis in the specification for "substantially separate piecemeal height regions".

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-4, 8-9, and 12-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear what the "substantially separate piecemeal height regions" are, or where the regions are located. It is further unclear what the scope of "substantially separate" is, as it would seem that regions are separate, or they are not separate. Further, "piecemeal height regions" is indefinite because it is unclear how a height region can be piecemeal. A region is a single entity, and additionally, if the regions are "separate" then "piecemeal" is duplicative.

There is no antecedent basis for "the separate piecemeal regions". It is unclear if these are the "substantially separate piecemeal height regions" or another set of separate piecemeal regions.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 1-4, 6, 8, 10 and 12-17, as best understood, are rejected under 35 U.S.C. 102(e) as being anticipated by Shimizu et al (US Patent 6,543,569).

Regarding claims 1, 15 and 17, Shimizu discloses a gear mechanism with a rotatable cylindrical worm (112) rotating about a first axis and a rotatable cylindrical worm gear (113) rotatable about a second axis perpendicular to the first axis, each having teeth via which they engage each other and include a concave and a convex region meshing with portions of the concave and convex regions of the other gear such that during rotation linear contact over the height of the teeth comes about when the teeth engage. (Fig 1)

Linear contact occurs over the height of at least three teeth pairs at substantially separate piecemeal height regions along the surface faces to establish linear contact along the height dimension, the height dimension is substantially perpendicular to both the first and second axis.

Regarding claims 1-4, 12 and 14, the tooth profile is a circular arc (non-involute) and each tooth has a convex and concave region of approximately equal curvature, the concave region is disposed in a region adjoining a tooth base and the convex region is disposed in a region adjoining a tooth tip. (Col 12, line 62-Col 13, line 57 and Figures 8a-8d).

Regarding claim 8, the thicknesses are adapted to the material properties of the gears.

Regarding claim 13 and 16, the worm is made from metal (112) and the worm gear (113) is made using resin or plastic, which is lower strength than the metal worm. (Col 11, lines 28-31)

Claim Rejections - 35 USC § 103

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu as applied to claims 1 and 8 above, further in view of Pickles (US Patent 2,760,381).

Shimizu does not disclose the tooth thickness of the teeth of the worm gear is greater than that of the teeth of the worm.

Pickles teaches a worm and worm wheel arrangement where the worm gear is a weaker material than the worm and the thickness of each tooth on the worm wheel being greater than one half the circular pitch and the thread of the worm being less than one half the circular pitch, the increased tooth thickness increases the strength of the weaker gear wheel while not increasing the amount of unnecessary material on the worm. (Col 1, lines 60-65).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Shimizu to include the larger tooth thickness on the worm gear made of weaker material for the desired purpose of increasing strength of the weaker worm gear while not adding unnecessary material to the worm as taught by Pickles.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu as applied to claim 1, and further in view of Scott (US Patent 2,279,414).

Shimizu does not disclose the second gear to be globoidal.

Scott teaches a globoidal worm engaging a worm wheel, the globoidal shape making it possible to increase the possible bearing between the thread flanks of the worm and tooth flanks of the worm wheel when carrying a heavy load. (pg 1, lines 5-11)

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Shimizu to include a globoidal shaped worm for the desired purpose of increasing the possible bearing between the thread flanks of the worm and tooth flanks of the worm wheel and increase the load carrying ability as taught by Scott.

Response to Arguments

Applicant's arguments filed January 17, 2007 have been fully considered but they are not persuasive.

Applicant's arguments are directed to language which is indefinite and unclear in its scope. To the extent which the claims are best understood, Shimizu is readable on the claims as written as disclosing all of the recited structure. Regarding the best understanding of "substantially separate piecemeal height regions" this limitation is satisfied as a worm gear and worm progressively engage and disengage teeth from each other with multiple teeth being in contact simultaneously.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUSTIN KRAUSE whose telephone number is (571)272-3012. The examiner can normally be reached on Monday - Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on 571-272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Justin Krause/
Examiner, Art Unit 3656

/Richard WL Ridley/
Supervisory Patent Examiner, Art Unit 3656

